Stratos *Pro*
The State of the Art for Process Analytics.

2-wire analyzers with great flexibility

With its exceptional range of functions and application-oriented design, Stratos is well-established in the entire chemicals industry, in process and power plant engineering and in the pharmaceutical and biotechnology industries.

Suitable for all conceivable indoor and outdoor scenarios, the Stratos brand is today a synonym for innovation and reliability in process applications around the world – for example in starch production in Germany, sugar manufacturing in Brazil, cooling water monitoring in France or medicine production in Belgium.

With its outstanding quality and diversity of equipment, the Stratos Pro series is the reference in 2-wire technology for process analytics.

The Stratos Pro series supports both conventional sensors and contactless, digital Memosens technology.
Even in tough ambient conditions and hazardous areas, the Stratos Pro can measure pH, ORP, conductivity (conductive and inductive) or oxygen values in almost any type of process.

Unique color-coded user interface

Stratos Pro is the first 2-wire device in this class to feature color screen backlighting which requires an absolute minimum of electrical power. To reduce operator errors, the high-contrast widescreen display clearly indicates the current operating mode in six different color tones: The normal measuring mode is white. Information text appears on a green screen and the diagnostic menu appears on turquoise. The orange HOLD mode (e.g., during calibration) is quickly visible as is the magenta screen which indicates asset management messages for predictive diagnostics – such as maintenance request, pre-alarm and sensor wear. The alarm status is indicated in a vibrant red, a flashing red display is a sign of impermissible entries or incorrect passcodes. Scrolling plain text messages and self-explanatory icons simplify operation.

Comprehensive features

From the wireless service interface to the complete HART communication system, the Stratos Pro series offers a wide range of reliable functions. The devices can be used in multidrop mode and are certified for handheld and asset management systems of the leading manufacturers.
In contrast to all other 2-wire devices on the market, the Stratos Pro features two digital control inputs and a second power output for a further measured value. Special versions are available for temperature class T6.

Explosion protection

The special circuit technology ensures low self-heating and an extremely high reliability. Stratos Pro is certified to ATEX / IECEx , FM, CSA, NEPSI, KOSHA, INMETRO.
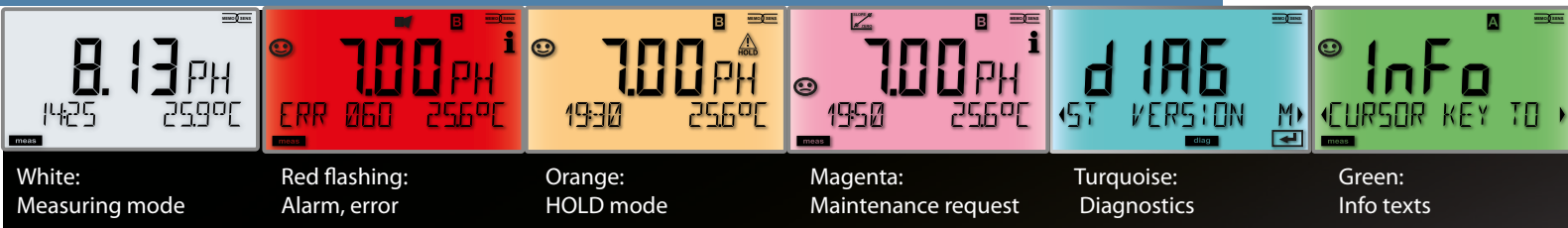A special version with ATEX/IECEx approval is available for temperature class T6.

Shatter-proof and corrosion-resistant housing

The IP 66/67 enclosure made of PBT is reinforced and UV protected.
Safe operation is guaranteed in the range from -20°C to +65°C, even for applications in hazardous locations.

Easy assembly

Stratos Pro is suitable for wall, pipe or panel mounting.
The rear unit can be pre-assembled; all parts are easily accessible thanks to the large terminal compartment.

Stratos Pro

8.13 PH	**7.00** PH	**7.00** PH	**7.00** PH	**d IAG**	**InFo**
14:25 25.9°C	ERR 060 25.6°C	19:30 25.6°C	19:50 25.6°C	‹ST VERSION M›	‹CURSOR KEY TO ›

White: Measuring mode	Red flashing: Alarm, error	Orange: HOLD mode	Magenta: Maintenance request	Turquoise: Diagnostics	Green: Info texts

Facts

– 2-wire analyzers for pH/ORP, conductivity or oxygen

– For analog, digital and Memosens sensors

– Automatic sensor identification

– Sensor diagnostic with wear indication, remaining lifetime, CIP/SIP counter and adaptive calibration timer

– High-contrast widescreen display with colored backlighting

– Protective pane made of safety glass

– Intuitive operation with easy-to-understand icons and continuously running plain-text ticker line

– One analog input (4 … 20 mA) e.g. for external pressure compensation

– Two current outputs

– Two parameter sets

– Two digital inputs

– External HOLD activation

– External switching between parameter sets

– Logbook (200 entries)

– HART communication

– Device versions for use in temperature class T6

– Operation in hazardous areas (explosion-protected for gas and dust)
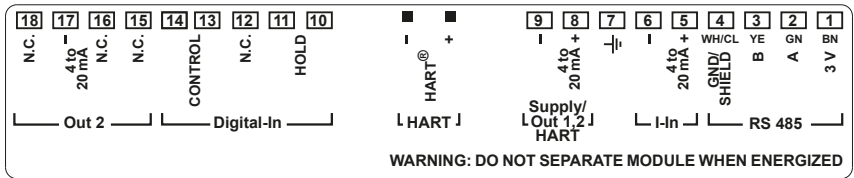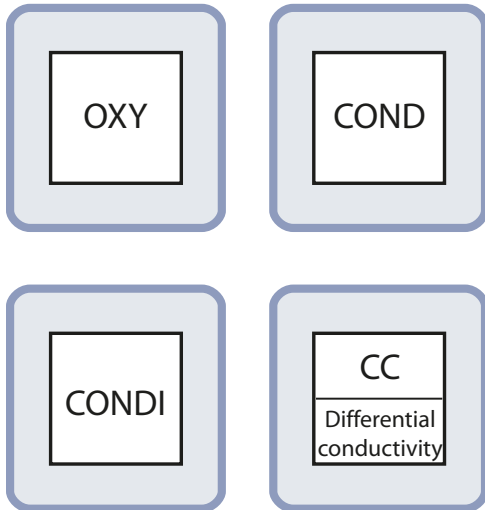2-wire: Zone 1
FM, CSA Class I, Div 1

IEC Ex   Ex   MEMO SENS   IP 66/67   NEMA 4X

CSA   FM APPROVED   Ex NEPSI   KCs   INMETRO

3-year warranty!

Terminal Assignments of Basic Device A201N (Non-Ex)

Wiring Example

OXY

COND

Modules for
analog measurements

CONDI

CC

Differential
conductivity

PH

Stratos Pro

MEMO SENS

Direct con-
nection of
Memosens
sensors
PH, ORP
COND
CONDI
OXY

I   mA

II   mA

I-input

Hold

Control

HART

Supply

Meas.val./Temp

Meas.val./Temp

Supply

0/4 ... 20 mA

PCS
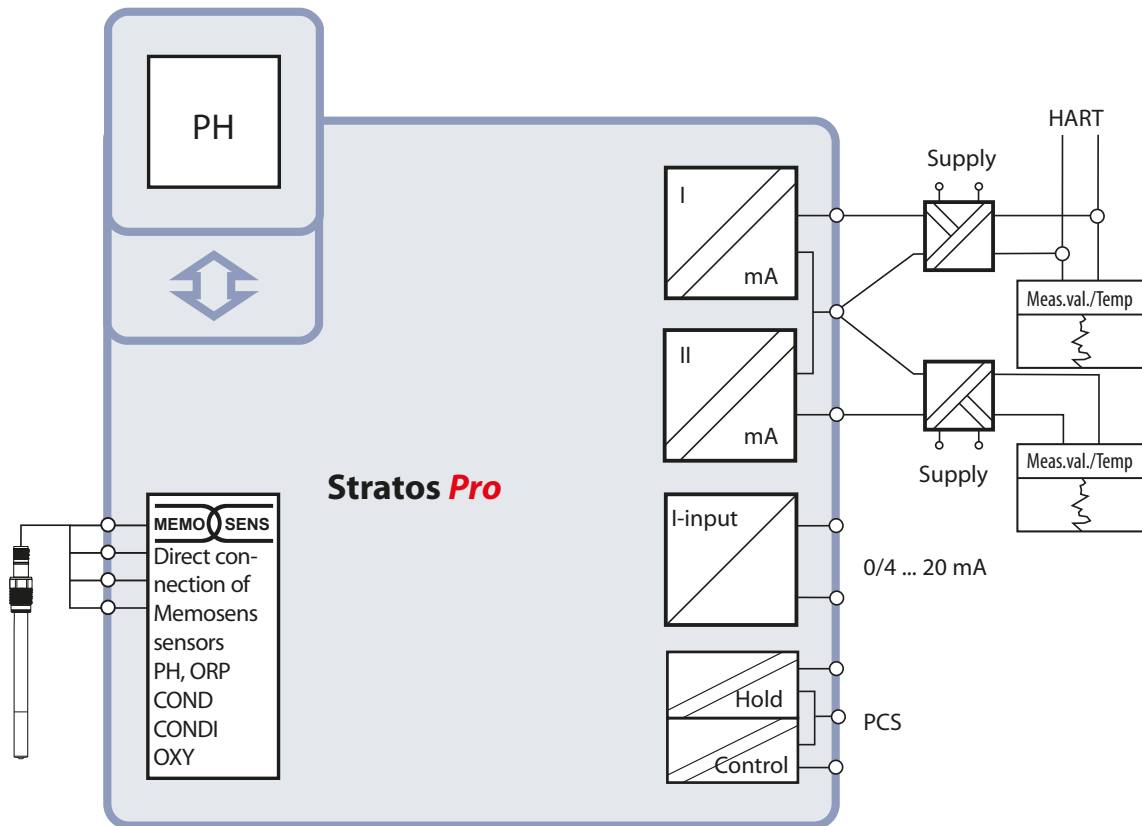
Product range Stratos Pro A2 T4

Device	Stratos Pro							
Type	2-wire / 4 … 20 mA	A	2	0	1			
Approvals	General Safety					N		
	ATEX/IECEx Zone 2; FM/CSA Cl 1 Div 2					B		
	ATEX/IECEx Zone 1; FM/CSA Cl 1 Div 1					X		
Process variables	Memosens pH/ORP						MSPH	
	Memosens conductivity						MSCOND	
	Memosens inductive conductivity						MSCONDI	
	Memosens oxygen						MSOXY	
	pH/ORP value, analog						PH	
	Conductivity, analog						COND	
	Inductive conductivity, analog						CONDI	
	Dual conductivity, analog (A201N only)						CC	
	Oxygen, analog						OXY	
Options	Without 2nd current output							0
	With 2nd current output							1

Product range Stratos Pro A2 T6

Device	Stratos Pro								
Typ	2-wire / 4 … 20 mA	A	2					0	T6
Communication	without (HART retrofittable via TAN)			0					
Version number	Version				1				
Approvals	ATEX IECEx Zone 1 T6					X			
Process variables	Memosens pH/ORP						MSPH		
	Memosens conductivity						MSCOND		
	Memosens inductive conductivity						MSCONDI		
	Memosens oxygen						MSOXY		
	pH / ORP value, analog						PH		
	Conductivity, analog						COND		
	Inductive conductivity, analog						CONDI		
	Oxygen, analog						OXY		
Options	1 current output							0	

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Accessories

Mounting Kits	Order No.
Pipe-mount kit	ZU 0274
Panel-mount kit	ZU 0738
Protective hood	ZU 0737

Add-On Functions (Firmware via TAN)	Order No.
HART communication	SW-A001
Logbook	SW-A002
Extended logbook (Audit Trail)	SW-A003
Trace oxygen measurement	SW-A004
Current input and 2 digital inputs	SW-A005
ISM digital (for pH and oxygen measuring channels)	SW-A006
Operation with Pfaudler pH sensors	SW-A007

Analog Ex Meas. Modules ATEX/IECEx Zone 1; FM/CSA Cl 1 Div 1	Order No.
pH/ORP measuring module	MK-PH 015X
Module for contacting cond. measurement	MK-COND 025X
Module for inductive cond. measurement	MK-CONDI 035X
Oxygen measuring module	MK-OXY 045X / MK-OXY 046X

Analog Ex Meas. Modules ATEX/IECEx Zone 2; FM/CSA Cl 1 Div 2	Order No.
pH/ORP measuring module	MK-PH 015B
Module for contacting cond. measurement	MK-COND 025B
Module for inductive cond. measurement	MK-CONDI 035B
Oxygen measuring module	MK-OXY 045B / MK-OXY 046B

Analog Measuring Modules (General Safety)	Order No.
pH/ORP measuring module	MK-PH 015N
Module for contacting cond. measurement	MK-COND 025N
Module for inductive cond. measurement	MK-CONDI 035N
Oxygen measuring module	MK-OXY 046N
Dual-conductivity measuring module, 2-channel	MK-CC 065N

Repeater Power Supplies	Order No.
Repeater power supply for 90 ... 253 V AC	WG 21 A7
Repeater power supply for 90 ... 253 V AC, with HART transmission	WG 21 A7, Opt. 470
Repeater power supply for 24 V AC/DC	WG 21 A7, Opt. 336
Repeater power supply for 24 V AC/DC, with HART transmission	WG 21 A7, Opt. 336, 470
Loop-powered supply with HART transmission	WG 25 A7
Repeater power supply, safe area, 24 V DC, output: 4 ... 20 mA	B 10116 F0
Repeater power supply, safe area, 24V DC, HART, output: 0/4 ... 20 mA, 0 ... 10 V	A 20100 F0

Test Sockets, Connector Plugs, Cables	Length	Order No.
HART test socket, integrated in cable gland		ZU 0287
VP8 connector		ZU 0721
M12 socket, 8-pin		ZU 0860
VP8-ST cable (both ends with VP socket)	3 m	ZU 0710
	5 m	ZU 0711
	10 m	ZU 0712
Inspection Certificate 3.1		ZU0268/Analysis

Connection

Connection of Memosens interface of 2-wire device with a Memosens sensor
Model used: Stratos Pro A201N–MSPH–0

Stratos Pro A2 MSPH

Specifications

Inputs

RS 485	digital input for Memosens pH sensors (glass or ISFET) or Memosens ORP sensors

Display range	pH value:	−2.00 … 16.00
	ORP:	−1999 … 1999 mV
	temperature:	−20.0 … 200.0 °C (−4.0 … 392.0 °F)

Current input (TAN)	analog, 0/4 … 20 mA for external temperature signal

HOLD input, digital	0 … 2 V (AC/DC)	HOLD inactive
	10 … 30 V (AC/DC)	HOLD active

CONTROL input, digital	parameter set selection	0 … 2 V (AC/DC)	parameter set A
		10 … 30 V (AC/DC)	parameter set B
	flow	pulse amplitude 10 … 30 V DC pulse input for flow measurement 0 … 100 pulses/s display: 00.00 … 99.99 l/h message via 22 mA, alarm contact or limit contacts	

Outputs

Output 1, Output 2	4 … 20 mA current loops, 22 mA for error message, HART communication (TAN) at output 1 supply voltage 14 … 30 V

Process variable*)	pH or mV value or temperature

Characteristic	linear or bilinear

Output filter*)	PT1 filter, filter time constant: 0 … 120 s

Sensor standardization

Operating modes*)	– adoption of calibration data from digital sensors – calibration with Calimatic automatic buffer recognition – manually, data entry or using the product buffer sets: Knick, Mettler Toledo, Merck/Riedel de Haen, Ciba (94), NIST, HACH, WTW, Hamilton, Reagecon

ISFET	operating point ±200 mV

ORP calibration range*)	−700 … 700 mV

Adaptive calibration timer	interval 0000 … 9999 h

Temperature compensation

TC of process medium	linear:	−19.99 … +19.99 %/K, reference temperature 25 °C
	table:	0 … 100 °C, user-defined in 5-K steps

Specifications

Communication	
HART communication (TAN)	HART version 6 digital communication by FSK modulation of output current 1 device identification, measured values, status and messages, parameter setting, calibration, records

Diagnostics/Service	
Diagnostic functions	calibration data, device self-test, display test
Sensocheck	automatic impedance monitoring of glass electrode
Sensoface	information on the sensor condition (zero/slope, response time, calibration interval, Sensocheck, wear)
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes – logbook entry and flag via HART in the case of configuration changes – message and logbook entry when enclosure is opened
Service functions	current source
Sensor monitor	display of direct sensor signals (mV/temperature/resistance, …)

Approvals	
Explosion protection	see Ex certificates and EU declaration of conformity or www.knick.de

Stratos Pro A2 MSPH

Specifications

Device data

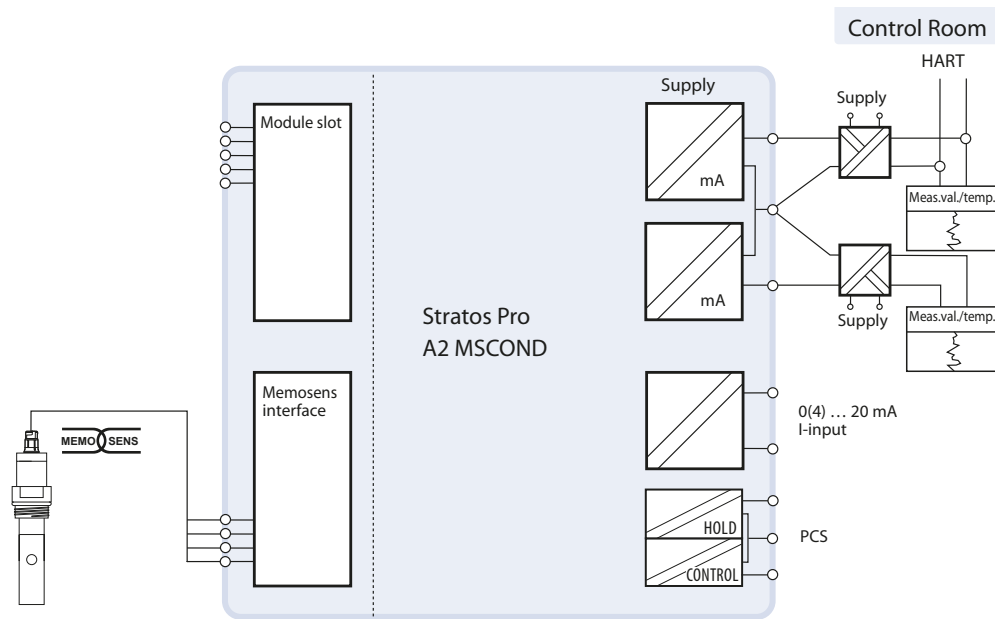|	
Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface®, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
Transport/Storage temperature	–20 … 70 °C / – 4 … 158 °F
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

Rated operating conditions

Ambient temperature	–20 … 65 °C / –4 … 149 °F
Relative humidity	10 … 95 %
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	– wall mounting – pipe mounting: Ø 40 … 60 mm, ☐ 30 … 45 mm – panel mounting
Dimensions (mm)	H x W x D: 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for ½″ NPT or rigid metallic conduit
Control panel cutout	138 mm x 138 mm according to DIN 43700
Ingress protection	IP 66/67/NEMA 4X
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2.5 mm^2

*) user-defined

Connection

Connection of Memosens interface of 2-wire device with a Memosens sensor
Model used: Stratos Pro A201N–MSCOND–0

Stratos Pro A2 MSCOND

Specifications

Inputs

RS 485	input for Memosens conductivity sensors

Measuring ranges*)	conductivity	0.000 µS/cm … 999.9 mS/cm 0.000 … 99.99 S/m
	resistivity	00.00 … 99.99 Mohms · cm
	concentration	00.00 … 9.99 %
	salinity	0.0 … 45.0 ‰ (0 … 35 °C)
	temperature	−50.0 … +250.0 °C /−58.0 … 482.0 °F

Temperature compensation*) (reference temperature 25 °C)	linear 00.00 … 19.99 %/K (user-defined reference temperature) natural waters to EN 27888 NaCl from 0 (ultrapure water) to 26 wt% (0 … 120 °C) ultrapure water with traces of NaCl, HCl, or NH3

Concentration determination	NaCl	0.00 … 9.99 wt%	(0 … 100 °C)
	HCl	0.00 … 9.99 wt%	(−20 … +50 °C)
	NaOH	0.00 … 9.99 wt%	(0 … 100 °C)
	H_2SO_4	0.00 … 9.99 wt%	(−17 … +110 °C)
	HNO_3	0.00 … 9.99 wt%	(−17 … +50 °C)

Current input (TAN)	analog, 0/4 … 20 mA for external temperature signal

HOLD input, digital	0 … 2 V (AC/DC)	HOLD inactive
	10 … 30 V (AC/DC)	HOLD active

CONTROL input, digital	parameter set selection	0 … 2 V (AC/DC)	parameter set A
		10 … 30 V (AC/DC)	parameter set B
	flow	pulse amplitude 10 … 30 V DC pulse input for flow measurement 0 … 100 pulses/s display: 00.00 … 99.99 l/h message via 22 mA, alarm contact or limit contacts	

Outputs

Output 1, Output 2	4 … 20 mA current loops, 22 mA for error message, HART communication at output 1, supply voltage 14 … 30 V

Process variable*)	conductivity, resistivity, concentration, salinity, or temperature

Characteristic	linear or logarithmic

Output filter*)	PT1 filter, filter time constant: 0 … 120 s

USP function	water monitoring in the pharmaceutical industry (USP) with additional user-defined limit value (%), output via 22 mA and HART (TAN)

Communication

HART-Communication (TAN)	HART version 6 digital communication by FSK modulation of output current 1 device identification, measured values, status and messages, parameter setting, calibration, records

Specifications

Sensor standardization	
Operating modes	– adoption of calibration data from digital sensors
	– input of cell constant with simultaneous display of selected process variable and temperature
	– input of conductivity of calibration solution with simultaneous display of cell constant and temperature
	– product calibration
	– temperature probe adjustment

Diagnostics/Service	
Diagnostic functions	calibration data, device self-test, display test
Sensocheck	polarization detection and monitoring of cable capacitance
Sensoface	provides information on the sensor condition, Sensocheck
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes – logbook entry and flag via HART in the case of configuration changes – message and logbook entry when enclosure is opened
Service functions	current source
Sensor monitor	direct display of measured values from sensor for validation: resistance/temperature

Approvals	
Explosion protection	see Ex certificates and EU declaration of conformity or www.knick.de

Stratos Pro A2 MSCOND

Specifications

Device data

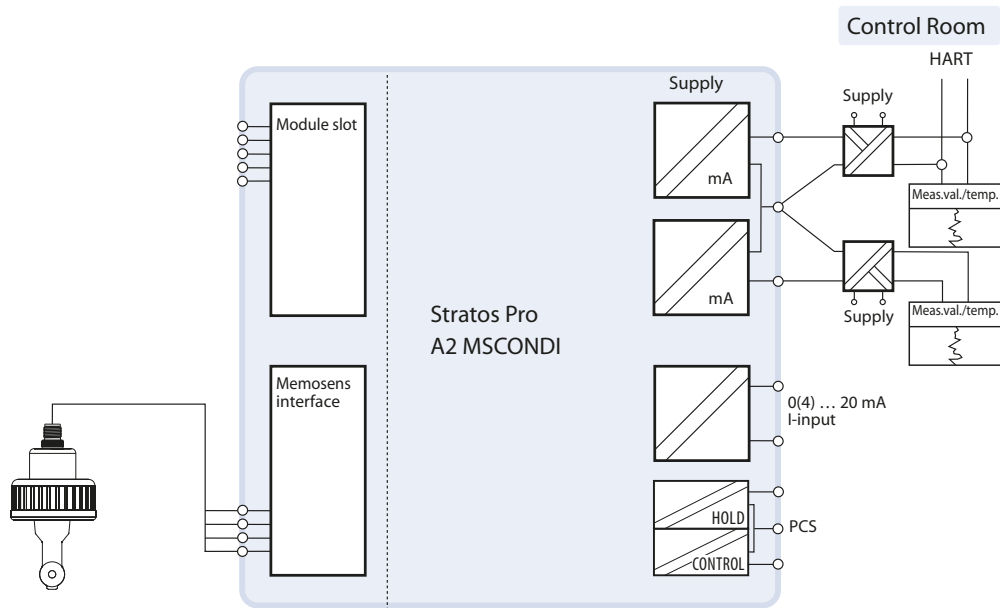|	
Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface®, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
Transport/Storage temperature	–20 … 70 °C / – 4 … 158 °F
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

Rated operating conditions

Ambient temperature	–20 … 65 °C / –4 … 149 °F
Relative humidity	10 … 95 %
Ingress protection	IP 66/67/NEMA 4X
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	– wall mounting – pipe mounting: Ø 40 … 60 mm, □ 30 … 45 mm – panel mounting
Dimensions (mm)	H x W x D 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for ½" NPT or rigid metallic conduit
Control panel cutout	138 mm x 138 mm according to DIN 43700
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2.5 mm^2

*) user-defined

Connection

Connection of Memosens interface of 2-wire device with a digital sensor
Model used: Stratos Pro A201N–MSCONDI–0

Control Room

HART

Supply

Supply

Supply

Module slot

mA

mA

Stratos Pro
A2 MSCONDI

Memosens
interface

Meas.val./temp.

Meas.val./temp.

0(4) … 20 mA
I-input

HOLD

PCS

CONTROL

Stratos Pro A2 MSCONDI

Specifications

Inputs

RS 485	input for digital toroidal conductivity sensor SE 670 or contactless Memosens conductivity sensors

Display ranges*)		
conductivity	0.00 … 999.9 mS/cm	0.000 … 99.99 S/m
concentration	00.00 … 9.99 %/10.0 … 100.0 %	
salinity	0.0 … 45.0 ‰ (0 … 35 °C)	
temperature	−20 … 150 °C /−4.0 … 302.0 °F	

Temperature compensation*) (reference temperature 25 °C)	none linear characteristic 00.00 … 19.99 %/K (user-defined reference temperature) natural waters to EN 27888 (0 … 120 °C) NaCl from 0 (ultrapure water) to 26 wt% (0 … 120 °C)

Concentration determination		
[01] NaCl	0–26 wt% (0 °C) … 0–28 wt% (100 °C)	
[02] HCl	0–18 wt% (−20 °C) … 0–18 wt% (50 °C)	
[03] NaOH	0–13 wt% (0 °C) … 0–24 wt% (100 °C)	
[04] H_2SO_4	0–26 wt% (−17 °C) … 0–37 wt% (110 °C)	
[05] HNO_3	0–30 wt% (−20 °C) … 0–30 wt% (50 °C)	
[06] H_2SO_4	94–99 wt% (−17 °C) … 89–99 wt% (115 °C)	
[07] HCl	22–39 wt% (−20 °C) … 22–39 wt% (50 °C)	
[08] HNO_3	35–96 wt% (−20 °C) … 35–96 wt% (50 °C)	
[09] H_2SO_4	28–88 wt% (−17 °C) … 39–88 wt% (115 °C)	
[10] NaOH	15–50 wt% (0 °C) … 35–50 wt% (100 °C)	

Current input (TAN)	analog, 0/4 … 20 mA for external temperature signal

HOLD input, digital		
0 … 2 V (AC/DC)	HOLD inactive	
10 … 30 V (AC/DC)	HOLD active	

CONTROL input, digital		
parameter set selection	0 … 2 V (AC/DC)	parameter set A
	10 … 30 V (AC/DC)	parameter set B
flow	pulse amplitude 10 … 30 V DC pulse input for flow measurement 0 … 100 pulses/s display: 00.00 … 99.99 l/h message via 22 mA, alarm contact or limit contacts	

Outputs

Output 1, Output 2	4 … 20 mA current loops, 22 mA for error message, HART communication (TAN) at output 1, supply voltage 14 … 30 V
Process variable*)	conductivity, resistivity, concentration, salinity, or temperature
Characteristic	linear, bilinear, or logarithmic
Output filter*)	PT1 filter, filter time constant: 0 … 120 s

Communication

HART communication (TAN)	HART version 6 digital communication by FSK modulation of output current 1 device identification, measured values, status and messages, parameter setting, calibration, records

Specifications

Sensor standardization	
Operating modes	– input of cell factor with simultaneous display of selected process variable and temperature
	– input of conductivity of calibration solution with simultaneous display of cell factor and temperature
	– product calibration
	– zero adjustment
	– temperature probe adjustment

Diagnostics/Service	
Diagnostic functions	calibration data, device self-test, display test
Sensocheck	monitoring of primary and secondary coils and lines for open circuit and of primary coil and lines for short circuit delay approx. 30 s
Sensoface	provides information on the sensor condition (zero point, Sensocheck)
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes – logbook entry and flag via HART in the case of configuration changes – message and logbook entry when enclosure is opened
Service functions	current source
Sensor monitor	direct display of measured values from sensor for validation: resistance/temperature

Approvals	
Explosion protection	see Ex certificates and EU declaration of conformity or www.knick.de

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Specifications

Device data

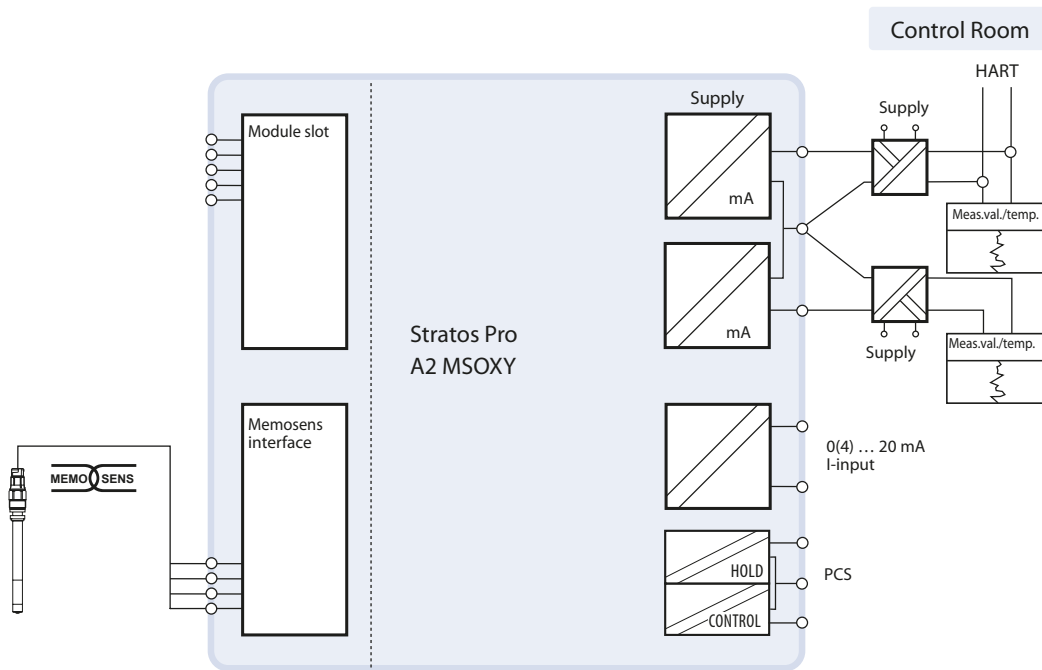|	
Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
Transport/Storage temperature	–20 … 70 °C / – 4 … 158 °F
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

Rated operating conditions

Ambient temperature	–20 … 65 °C / –4 … 149 °F
Relative humidity	10 … 95 %,
Ingress protection	IP 66/67/NEMA 4X
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	– wall mounting – pipe mounting: Ø 40 … 60 mm, □ 30 … 45 mm – panel mounting
Dimensions (mm)	H x W x D 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for ½" NPT or rigid metallic conduit
Control panel cutout	138 mm x 138 mm according to DIN 43700
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2.5 mm^2

*) user defined

Connection

Connection of Memosens interface of 2-wire device with a Memosens sensor
Model used: Stratos Pro A201N–MSOXY–0

Specifications

Inputs	
RS 485	digital input for Memosens oxygen sensors SE 706X-NMSN, SE 707X-NMSN
Operating modes	GAS measurement in gases DO measurement in liquids
Display ranges with trace sensors "01" (TAN)	saturation 0.000 … 150.0 % concentration 0 … 9999 µg/l (ppb)/10.00 … 20.00 mg/l (ppm) volume concentration in gas 0 … 9999 ppm (vol)/1.000 … 50.00 vol %
Display range for temperature	−20.0 … 150.0 °C / −4.0 … 302.0 °F
Input correction	
Pressure correction[*)]	0.000 … 9.999 bars/999.9 kPa/145.0 PSI manually or through current input 0(4) … 20 mA
Salinity correction[*)]	0.0 … 45.0 g/kg
Current input (TAN)	analog, 0/4 … 20 mA for external pressure compensation
HOLD input, digital	0 … 2 V (AC/DC) HOLD inactive 10 … 30 V (AC/DC) HOLD active
CONTROL input, digital	parameter set selection 0 … 2 V (AC/DC) parameter set A 10 … 30 V (AC/DC) parameter set B
	flow pulse amplitude 10 … 30 V DC pulse input for flow measurement 0 … 100 pulses/s display: 00.00 … 99.99 l/h message via 22 mA, alarm contact or limit contacts

Outputs	
Output 1, Output 2	4 … 20 mA current loops, 22 mA for error message, HART communication (TAN) at output 1, supply voltage 14 … 30 V
Process variable[*)]	O_2 saturation/O_2 concentration or temperature
Characteristic	linear
Output filter[*)]	PT1 filter, filter time constant: 0 … 120 s

Communication	
HART communication (TAN)	HART version 6 digital communication by FSK modulation of output current 1 device identification, measured values, status and messages, parameter setting, calibration, records

Specifications

Sensor standardization	
Operating modes*)	– adoption of calibration data from digital sensors
	– automatic calibration in air
	– automatic calibration in air-saturated water
	– product calibration
	– zero calibration
Calibration range standard sensor "10"	zero point ±2 nA slope 25 … 130 nA (at 25 °C, 1013 mbars)
Calibration range trace sensor "01"	zero point ±2 nA slope 200 … 550 nA (at 25 °C, 1013 mbars)
Calibration timer*)	0000 … 9999 h
Pressure correction*)	manually 0.000 … 9.999 bars/999.9 kPa/145.0 PSI

Diagnostics/Service	
Diagnostic functions	calibration data, device self-test, display test
Sensoface	provides information on the sensor condition (zero point, slope, calibration interval, and sensor wear)
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes
	– logbook entry and flag via HART in the case of configuration changes
	– message and logbook entry when enclosure is opened
Service functions	current source
Sensor monitor	display of direct sensor signals (sensor current, temperature, current input)

Approvals	
Explosion protection	see Ex certificates and EU declaration of conformity or www.knick.de

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Stratos Pro A2 MSOXY

Specifications

Device data

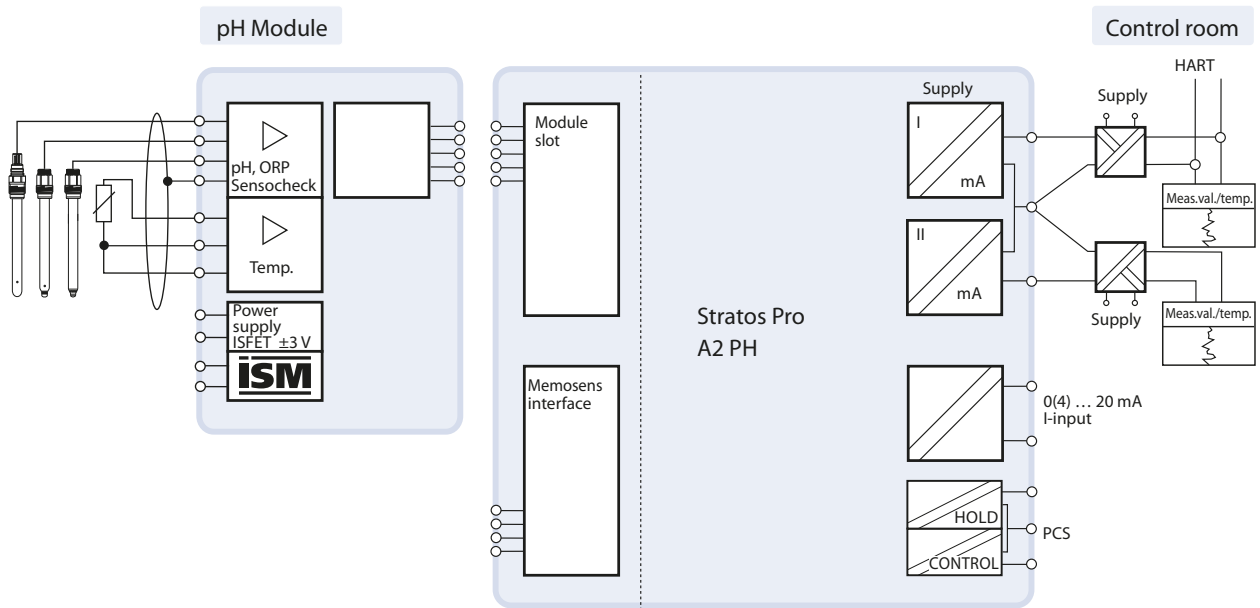|	
Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
Transport/Storage temperature	–20 … 70 °C / – 4 … 158 °F
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

Rated operating conditions

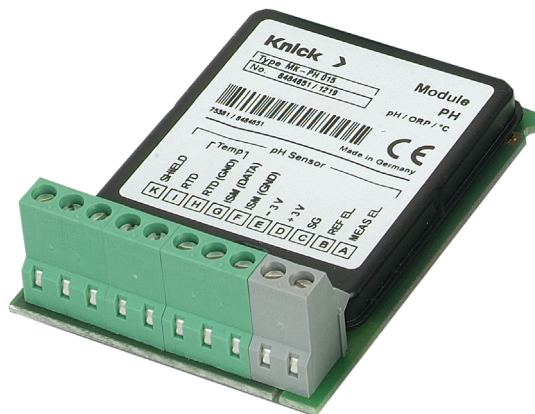|	
Ambient temperature	–20 … 65 °C / –4 … 149 °F
Relative humidity	10 … 95 %
Ingress protection	IP 66/67/NEMA 4X
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	– wall mounting – pipe mounting: Ø 40 … 60 mm, □ 30 … 45 mm – panel mounting
Dimensions (mm)	H x B x T 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for ½″ NPT or rigid metallic conduit
Control panel cutout	138 mm x 138 mm according to DIN 43700
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2,5 mm^2

*) user-defined

Connection

Connection of the PH with any desired analog sensor or with ISM or ISFET sensors
Model used: Stratos Pro A201N–PH–0

pH Module

Control room

Terminal Assignments of Stratos Pro MK-PH-015 Module

Stratos Pro A2 PH

Specifications

Inputs

pH/mV	input for pH sensors (glass or ISFET) or ORP sensors
Display range	pH value: −2.00 … +16.00 ORP: −1999 … +1999 mV
ISM (TAN)	interface for operation with ISM (digital sensors)
Temperature	Pt 100 / Pt 1000 / NTC 30 kOhm
Display range for temperature	−20.0 … 150.0 (200,0) °C / −4.0 … 302.0 (392.0) °F
Current input (TAN)	analog, 0/4 … 20 mA for external temperature signal

HOLD input, digital		0 … 2 V (AC/DC) 10 … 30 V (AC/DC)	HOLD inactive HOLD active
CONTROL input, digital	parameter set selection	0 … 2 V (AC/DC) 10 … 30 V (AC/DC)	parameter set A parameter set B
	flow	pulse amplitude 10 … 30 V DC pulse input for flow measurement 0 … 100 pulses/s display: 00.00 … 99.99 l/h message via 22 mA, alarm contact or limit contacts	

Outputs

Output 1, Output 2	4 … 20 mA current loops, 22 mA for error message, HART communication (TAN) at output 1, supply voltage 14 … 30 V
Process variable*}	pH or mV value or temperature
Characteristic	linear or bilinear
Output filter*}	PT1 filter, filter time constant: 0 … 120 s
Power output	for operating an ISFET adapter ±3 V/0.5 mA

Specifications

Sensor standardization

Operating modes	– calibration with Calimatic automatic buffer recognition – manually, data entry or using the product buffer sets: Knick, Mettler Toledo, Merck/Riedel de Haen, Ciba (94), NIST, HACH, WTW, Hamilton, Reagecon, user-defined buffer table
ISFET	operating point ±200 mV
ORP calibration range	–700 … 700 mV
Adaptive calibration timer	interval 0000 … 9999 h

Temperature compensation

TC of process medium	linear: –19.99 …19.99 %/K, reference temperature 25 °C table: 0 … 100 °C, user-defined in 5-K steps

Communication

HART communication (TAN)	HART version 6 digital communication by FSK modulation of output current 1 device identification, measured values, status and messages, parameter setting, calibration, records

Diagnostics/Service

Diagnostic functions	calibration data, device self-test, display test
Sensocheck	automatic impedance monitoring of glass and reference electrode
Sensoface	information on the sensor condition (zero/slope, response time, calibration interval, Sensocheck)
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes – logbook entry and flag via HART in the case of configuration changes – message and logbook entry when enclosure is opened
Service functions	current source
Sensor monitor	display of direct sensor signals (mV/temperature/resistance …)

Approvals

Explosion protection	see Ex certificate and EU declaration of conformity or www.knick.de

Stratos Pro A2 PH

Specifications

Device data

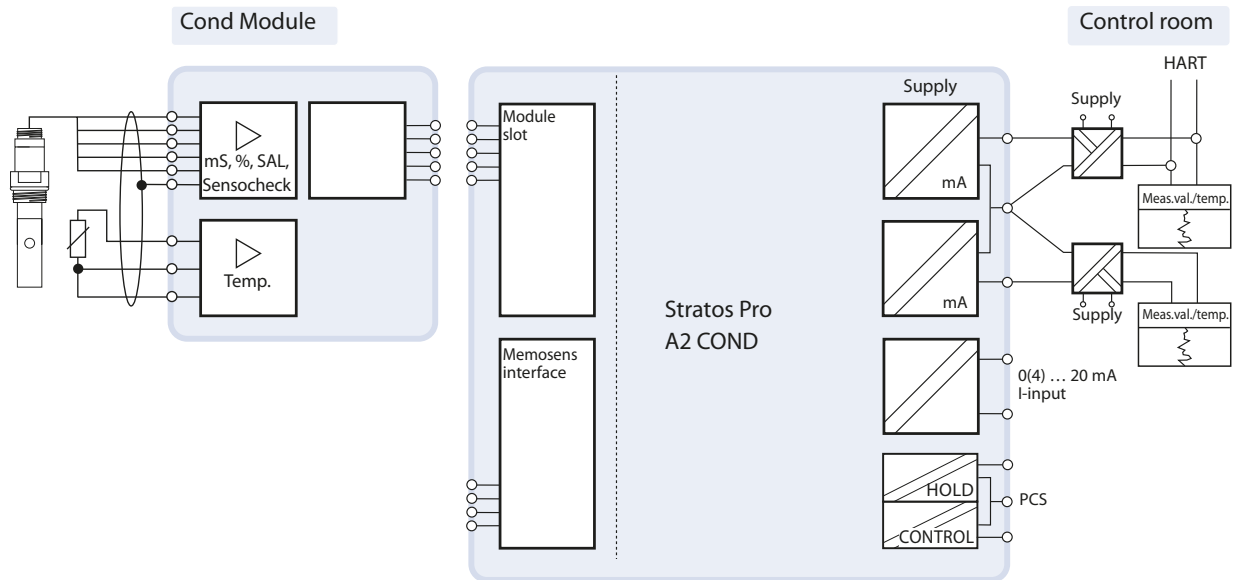|	
Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
Transport/Storage temperature	–20 … +70 °C
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

Rated operating conditions

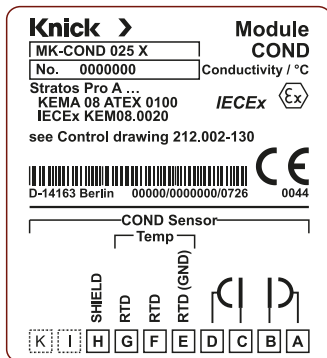|	
Ambient temperature	–20 … +65 °C
Relative humidity	10 … 95 %
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	– wall mounting – pipe mounting: Ø 40 … 60 mm, □ 30 … 45 mm – panel mounting
Dimensions (mm)	H x W x D 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for ½" NPT or rigid metallic conduit
Control panel cutout	138 mm x 138 mm to DIN 43700
Ingress protection	IP 66/67/NEMA 4X outdoor
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2.5 mm^2

*} user defined

Connection

Connection of COND module with 2- or 4-electrode sensors
Model used: Stratos Pro A201N-COND-0

Cond Module

mS, %, SAL, Sensocheck

Temp.

Module slot

Memosens interface

Stratos Pro
A2 COND

Control room

Supply

HART

Supply

mA

Meas.val./temp.

mA

Supply

Meas.val./temp.

0(4) … 20 mA
I-input

HOLD

CONTROL

PCS

Terminal Assignments of Stratos Pro COND Module

Knick ›
Module
COND

MK-COND 025 X

No. 0000000 Conductivity / °C

Stratos Pro A …
KEMA 08 ATEX 0100 **IECEx** ‹Ex›
IECEx KEM08.0020

see Control drawing 212.002-130

D-14163 Berlin 00000/0000000/0726 0044 CE

COND Sensor
Temp

SHIELD | RTD | RTD | RTD (GND)
K | I | H | G | F | E | D | C | B | A

Specifications

Inputs		
Conductivity	input for 2-electrode and 4-electrode sensors	
Effective ranges	2-electrode sensors 4-electrode sensors	0.2 µS · c … 200 mS · c 0.2 µS · c … 1000 mS · c
Measuring ranges*)	conductivity resistivity concentration salinity	0.000 µS/cm … 999.9 mS/cm 0.000 … 99.99 S/m 00.00 … 99.99 Mohms · cm 00.00 … 9.99 % 0.0 … 45.0 ‰ (0 … 35 °C)
Temperature compensation*) reference temperature 25 °C)	linear 00.00 … 19.99 %/K (user-defined reference temperature) natural waters to EN 27888 NaCl from 0 (ultrapure water) to 26 wt% (0 … 120 °C) ultrapure water with traces of NaCl, HCl, or NH3	
Concentration determination	NaCl 0.00 … 9.99 wt% HCl 0.00 … 9.99 wt% NaOH 0.00 … 9.99 wt% H_2SO_4 0.00 … 9.99 wt% HNO_3 0.00 … 9.99 wt%	(0 … 100 °C) (−20 … 50 °C) (0 … 100 °C) (−17 … 110 °C) (−17 … 50 °C)
Temperature	Pt 100 / Pt 1000 / NTC 30 kohms / NTC 8.55 kohms (Betatherm) / Ni 100	
Measuring range	Pt: −50.0 … 250.0 °C / −58.0 … 482.0 °F NTC: −20.0 … 150.0 °C / −4.0 … 302.0 °F Ni 100: −50.0 … 180.0 °C / −58.0 .. 356.0 °F	
Current input (TAN)	analog, 0/4 … 20 mA for external temperature signal	
HOLD input, digital	0 … 2 V (AC/DC) 10 … 30 V (AC/DC)	HOLD inactive HOLD active
CONTROL input, digital	parameter set selection	0 … 2 V (AC/DC) parameter set A 10 … 30 V (AC/DC) parameter set B
	flow	pulse amplitude 10 … 30 V DC pulse input for flow measurement 0 … 100 pulses/s display: 00.00 … 99.99 l/h message via 22 mA, alarm contact or limit contacts

Outputs	
Output 1, Output 2	4 … 20 mA current loops, 22 mA for error message, HART communication (TAN) at output 1, supply voltage 14 … 30 V
Process variable*)	conductivity, resistivity, concentration, salinity, or temperature
Characteristic	linear, bilinear, or logarithmic
Output filter*)	PT1 filter, filter time constant: 0 … 120 s
USP function	water monitoring in the pharmaceutical industry (USP) with additional user-defined limit value (%), output via 22 mA and HART (TAN)

Specifications

Sensor standardization	
Operating modes	– input of cell constant with simultaneous display of selected process variable and temperature
	– input of conductivity of calibration solution with simultaneous display of cell constant and temperature
	– product calibration
	– temperature probe adjustment
Communication	
HART communication (TAN)	HART version 6 digital communication by FSK modulation of output current 1 device identification, measured values, status and messages, parameter setting, calibration, records
Diagnostics/Service	
Diagnostic functions	calibration data, device self-test, display test
Sensocheck	polarization detection and monitoring of cable capacitance
Sensoface	provides information on the sensor condition, Sensocheck
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes – logbook entry and flag via HART in the case of configuration changes – message and logbook entry when enclosure is opened
Service functions	current source
Sensor monitor	direct display of measured values from sensor for validation: resistance/temperature
Approvals	
Explosion protection	see Ex certificates and EU declaration of conformity or www.knick.de

Stratos Pro A2 COND

Specifications

Device data

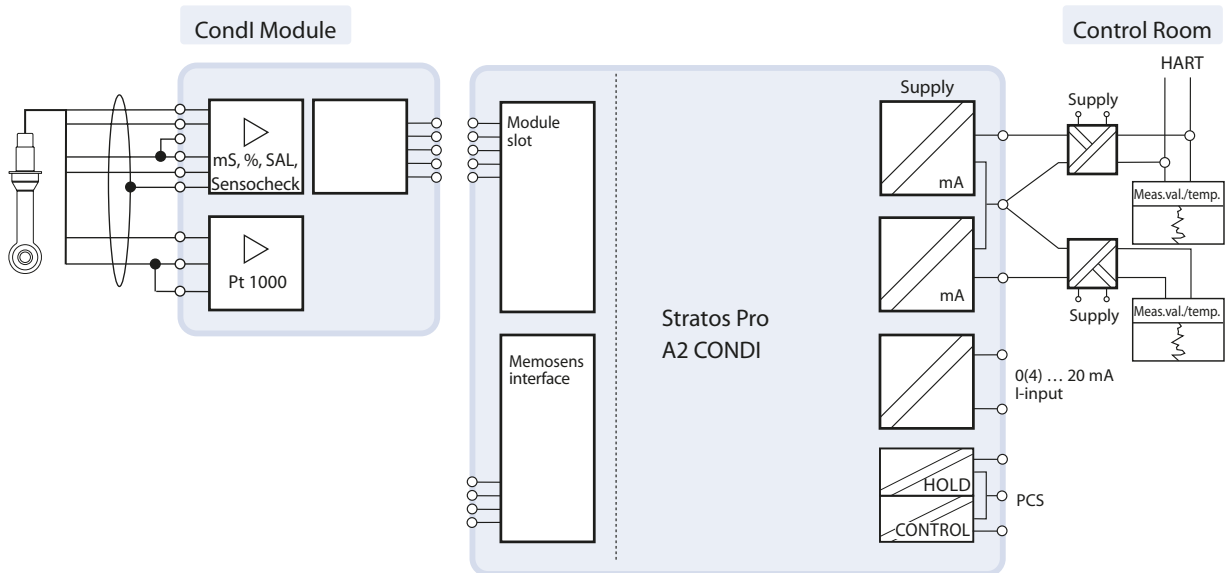|	
Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface®, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
Transport/Storage temperature	–20 … +70 °C / – 4 … 158 °F
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

Rated operating conditions

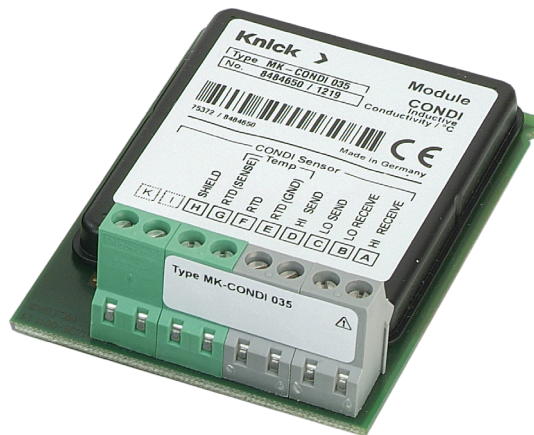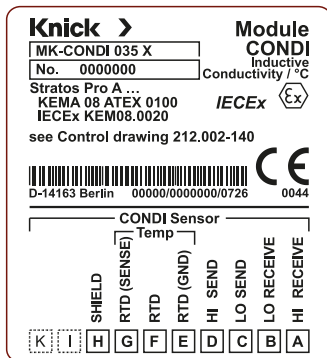|	
Ambient temperature	–20 … +65 °C / –4 … 149 °F
Relative humidity	10 … 95 %
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	– wall mounting – pipe mounting: Ø 40 … 60 mm, □ 30 … 45 mm – panel mounting
Dimensions (mm)	H x W x D 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for ½" NPT or rigid metallic conduit
Ingress protection	IP 66/67/NEMA 4X
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2.5 mm^2

[*] user-defined

Connection

Connection of CONDI module with toroidal sensors
Model used: Stratos Pro A201N–CONDI–0

CondI Module

mS, %, SAL, Sensocheck

Pt 1000

Module slot

Memosens interface

Stratos Pro
A2 CONDI

Control Room

HART

Supply

Supply

mA

mA

Supply

Meas.val./temp.

Meas.val./temp.

0(4) … 20 mA
I-input

HOLD

CONTROL

PCS

Terminal Assignments of Stratos Pro CONDI Module

Knick >
Module CONDI
Inductive
Conductivity / °C

MK-CONDI 035 X
No.   0000000
Stratos Pro A …
  KEMA 08 ATEX 0100   IECEx
  IECEx KEM08.0020

see Control drawing 212.002-140

D-14163 Berlin   00000/0000000/0726   0044

CONDI Sensor
Temp

| SHIELD | RTD (SENSE) | RTD | RTD (GND) | HI SEND | LO SEND | LO RECEIVE | HI RECEIVE |

| K | I | H | G | F | E | D | C | B | A |

Stratos Pro A2 CONDI

Specifications

Inputs

Conductivity	input for toroidal conductivity sensors

Effective ranges		
	conductivity	0.000 … 1999 mS/cm
	concentration	0.00 … 100.0 wt%
	salinity	0.0 … 45.0 ‰

Temperature compensation*)	linear 00.00 … 19.99 %/K (user-defined reference temperature)
(reference temperature 25 °C)	NaCl from 0 to 26 wt% (0 … 120°C)
	natural waters to EN 27888

Concentration determination		
	NaCl	0–26 wt% (0 °C) … 0–28 wt% (100 °C)
	HCl	0–18 wt% (–20 °C) … 0–18 wt% (50 °C)
	NaOH	0–13 wt% (0 °C) … 0–24 wt% (100 °C)
	H_2SO_4	0–26 wt% (–17 °C) … 0–37 wt% (110 °C)
	HNO_3	0–30 wt% (–20 °C) … 0–30 wt% (50 °C)
	H_2SO_4	94–99 wt% (–17 °C) … 89–99 wt% (115 °C)
	HCl	22–39 wt% (–20 °C) … 22–39 wt% (50 °C)
	HNO_3	35–96 wt% (–20 °C) … 35–96 wt% (50 °C)
	H_2SO_4	28–88 wt% (–17 °C) … 39–88 wt% (115 °C)
	NaOH	15–50 wt% (0 °C) … 35–50 wt% (100 °C)

Temperature	Pt 100 / Pt 1000 / NTC 30k

Measuring range		
	Pt:	–50.0 … 250.0 °C / –58.0 … 482.0 °F
	NTC:	–20.0 … 150.0 °C / –4.0 … 302.0 °F

Current input (TAN)	analog, 0/4 … 20 mA for external temperature signal

HOLD input, digital		
	0 … 2 V (AC/DC)	HOLD inactive
	10 … 30 V (AC/DC)	HOLD active

CONTROL input, digital	parameter set selection	0 … 2 V (AC/DC)	parameter set A
		10 … 30 V (AC/DC)	parameter set B
	flow	pulse amplitude 10 … 30 V DC	
		pulse input for flow measurement 0 … 100 pulses/s	
		display: 00.00 … 99.99 l/h	
		message via 22 mA, alarm contact or limit contacts	

Outputs

Output 1, Output 2	4 … 20 mA current loops, 22 mA for error message,
	HART communication (TAN) at output 1,
	supply voltage 14 … 30 V

Process variable*)	conductivity, concentration, salinity, or temperature
Characteristic	linear, bilinear, or logarithmic
Output filter*)	PT1 filter, filter time constant: 0 … 120 s

Communication

HART communication	HART version 6
(TAN)	digital communication by FSK modulation of output current 1
	device identification, measured values, status and messages, parameter setting,
	calibration, records

Specifications

Sensor standardization	
Operating modes	– input of cell factor with simultaneous display of selected process variable and temperature
	– input of conductivity of calibration solution with simultaneous display of cell factor and temperature
	– product calibration
	– zero adjustment
	– temperature probe adjustment
Permissible cell factor	$0.100 \ldots 19.999 \text{ cm}^{-1}$
Permissible transfer ratio	$1.00 \ldots 199.99$
Permissible zero offset	$\pm 0,5$ mS

Diagnostics/Service	
Diagnostic functions	calibration data, device self-test, display test
Sensocheck	monitoring of primary and secondary coils and lines for open circuit and short circuit
Sensoface	provides information on the sensor condition (zero point, Sensocheck)
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes – logbook entry and flag via HART in the case of configuration changes – message and logbook entry when enclosure is opened
Service functions	current source
Sensor monitor	display of direct sensor signal (resistance/temperature)

Approvals	
Explosion protection	see Ex certificates and EU declaration of conformity or www.knick.de

Stratos Pro A2 CONDI

Specifications

Device data

|	
Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
Transport/Storage temperature	–20 … 70 °C / – 4 … 158 °F
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

Nominal operating conditions

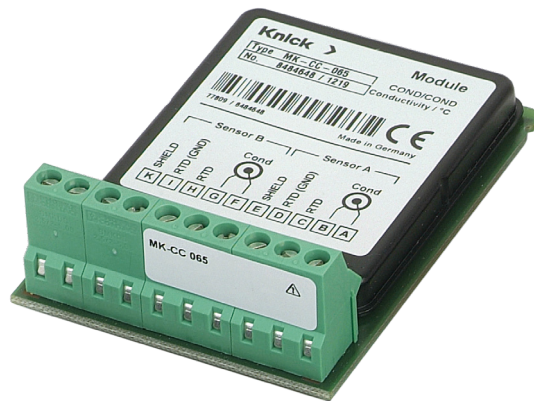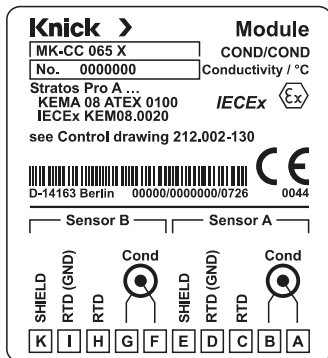|	
Ambient temperature	–20 … 65 °C / –4 … 149 °F
Relative humidity	10 … 95 %
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	– wall mounting – pipe mounting: Ø 40 … 60 mm, ☐ 30 … 45 mm – panel mounting
Dimensions (mm)	H x W x D 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for ½" NPT or rigid metallic conduit
Control panel cutout	138 mm x 138 mm according to DIN 43700
Ingress protection	IP 66/67/NEMA 4X outdoor
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2.5 mm^2

*) user-defined

Connection

Connection of CC module with two 2-electrode sensors
Model used: Stratos Pro A201N–CC–0
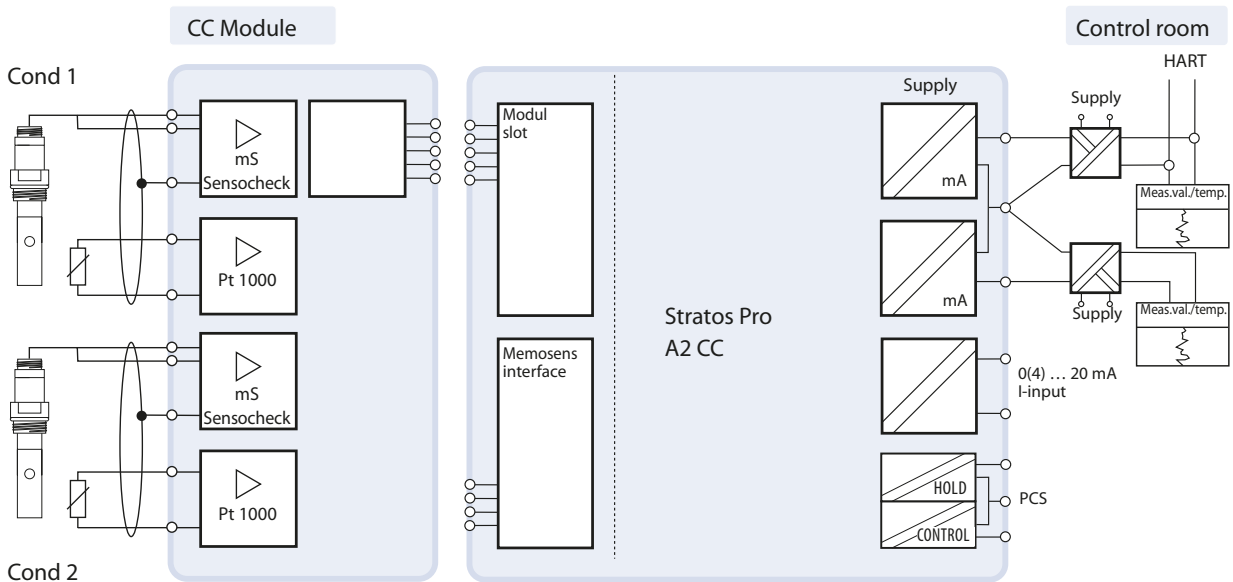
Terminal Assignments of Stratos Pro CC Module

Specifications

Inputs

Conductivity	2 inputs for 2-electrode sensors
Measuring range	0 … 30000 µS · c

Display range*)	conductivity	0.000 ... 9999 µS/cm
		00.00 ... 99,99 µS/cm
		000.0 ... 999,9 µS/cm
		0000 ... 9999 µS/cm
	resistivity	00.00 ... 99.99 MΩ · cm

Temperature compensation*) (reference temperature 25 °C)	linear 00.00 … 19.99 %/K (user-defined reference temperature) natural waters to EN 27888 NaCl from 0 (ultrapure water) to 26 wt% (0 … 120 °C) ultrapure water with traces of NaCl, HCl, or NH3

Calculations (CALC)				
	–C1–	Difference	A – B	[µS/cm]
	–C2–	Ratio	A / B	00.00 … 19.99
	–C3–	Passage	B / A · 100	000.0 … 199.9 %
	–C4–	Rejection	(A – B) / A · 100	–199.9 … 199.9 %
	–C5–	Deviation	(B – A) / A · 100	–199.9 … 199.9 %
	–C6–	pH value	acc. to directive VGB S-006	[pH]
	–C7–	pH value	variable, specifiable factors	[pH]
	–C8–	USER SPEC	DAC (Degassed Acid Conductivity)	[µS/cm]
	–C9–	ALCALISING	Concentration of the alkalizing agent (VGB S-006)	

Temperature	Pt 1000 2-wire connection, adjustable
Measuring range	–50,0 … 200,0 °C / –58,0 … 392,0 °F
Current input (TAN)	analog, 0/4 … 20 mA, e.g. for flow monitoring
HOLD input, digital	0 … 2 V (AC/DC) HOLD inactive 10 … 30 V (AC/DC) HOLD active
CONTROL input, digital e.g. flow monitoring	level relay input for external monitoring equipment
	flow pulse amplitude 10 … 30 V DC pulse input for flow measurement 0 … 100 pulses/s display: 00.00 … 99.99 l/h message via 22 mA

Outputs

Output 1, Output 2	4 … 20 mA current loops, 22 mA for error message, HART communication (TAN) at output 1, supply voltage 14 … 30 V
Process variable*)	conductivity, resistivity, concentration, temperature, or CALC
Characteristic	linear
Output filter*)	PT1 filter, filter time constant: 0 … 120 s

Specifications

Sensor standardization	
Channel A/B	input of cell constant with simultaneous display of selected process variable and temperature
Permissible cell constant	$0.0050 \ldots 1.9999 \text{ cm}^{-1}$

Communication	
HART communication (TAN)	HART version 6 digital communication by FSK modulation of output current 1 device identification, measured values, status and messages, parameter setting, calibration, records

Diagnostics/Service	
Diagnostic functions	calibration data, device self-test, display test
Sensocheck	polarization detection and monitoring of cable capacitance delay approx. 30 s
Sensoface	provides information on the sensor condition, Sensocheck, flow monitoring
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes – logbook entry and flag via HART in the case of configuration changes – message and logbook entry when enclosure is opened
Service functions	current source for output 1 and 2 (3.80 … 22.00 mA)
Sensor monitor	direct display of measured values from sensor for validation: resistance/temperature

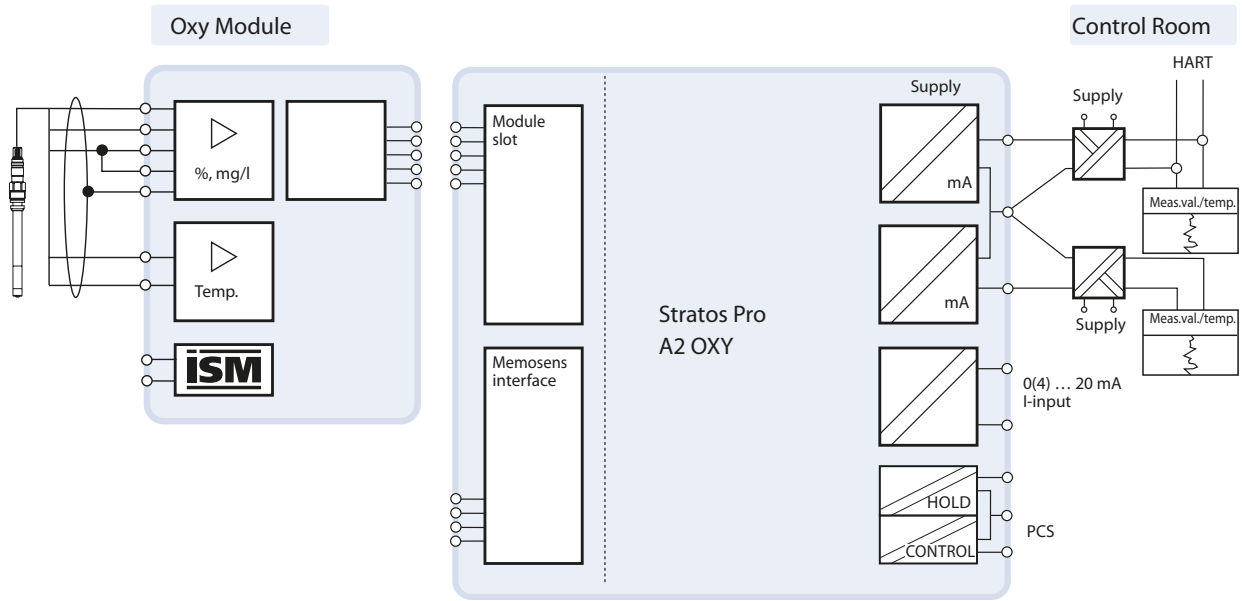| Device data	
Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
Transport/Storage temperature	–20 … 70 °C / – 4 … 158 °F
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

Stratos Pro A2 CC

Specifications

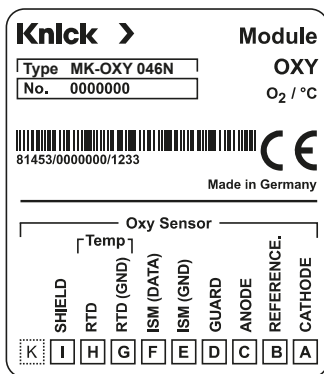|	
Nominal operating conditions	
Ambient temperature	–20 … 65 °C / –4 … 149 °F
Relative humidity	10 … 95 %
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	– wall mounting – pipe mounting: Ø 40 … 60 mm, □ 30 … 45 mm – panel mounting
Dimensions (mm)	H x W x D 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for ½″ NPT or rigid metallic conduit
Control panel cutout	138 mm x 138 mm according to DIN 43700
Ingress protection	IP 66/67/NEMA 4X outdoor
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2.5 mm^2

*) user-defined

Connection

Connection of OXY module with SE 706 oxygen sensors, Mettler Toledo InPro 6800, Hamilton Oxyferm
Model used: Stratos Pro A201N–OXY–0

Oxy Module — %, mg/l — Temp. — ISM — Module slot — Memosens interface — **Stratos Pro A2 OXY** — Supply — mA — mA — 0(4) … 20 mA I-input — HOLD — CONTROL — PCS — **Control Room** — HART — Supply — Supply — Meas.val./temp. — Meas.val./temp.

Terminal Assignments of Stratos Pro Oxy Module

Knick › Module OXY O₂ / °C
Type MK-OXY 046N
No. 0000000
81453/0000000/1233 C E
Made in Germany

Oxy Sensor — Temp
SHIELD — RTD — RTD (GND) — ISM (DATA) — ISM (GND) — GUARD — ANODE — REFERENCE. — CATHODE
K — I — H — G — F — E — D — C — B — A

Stratos Pro A2 OXY

Specifications

Module input, analog	Standard	Sensors: SE 703; SE 706; InPro6800; Oxyferm
	Input range	Measuring current -600 ... 2 nA, resolution 10 pA
	Measurement error[1]	< 0.5% measured value + 0.05 nA + 0.005 nA/K
	Trace measurement	Sensors: SE 707; InPro 6900; Oxyferm/Oxygold
	TAN option SW-A004	
	Input range I	Measuring current -600 ... 2 nA, resolution 10 pA
		Automatic range selection
	Measurement error[1]	< 0.5% measured value + 0.05 nA + 0.005 nA/K
	Input range II	Measuring current -10000 ... 2 nA, resolution 166 pA
		Automatic range selection
	Measurement error[1]	< 0.5% measured value + 0.8 nA + 0.08 nA/K
	Polarization voltage	-400 ... -1000 mV Default –675 mV
		Resolution < 5 mV
	Permissible guard current ≤ 20 µA	
Temperature input via module	NTC 22 kΩ/NTC 30 kΩ	
	2-wire connection, adjustable	
	Measuring range	−20.0 ... 150.0 °C / –4 ... 302 °F
	Adjustment range	10 K
	Resolution	0.1 °C / 0.1 °F
	Measurement error[1][3]	< 0.5 K (< 1 K for Pt100; < 1 K for NTC > 100 °C/212 °F)
Operating modes	Measurement in gases	
	Measurement in liquids	
Measuring ranges	Standard sensor (analog, Memosens, SE 740)	
	Saturation[4]	0.0 ... 600.0 %
	Concentration[4] (dissolved oxygen)	0.00 ... 99.99 mg/l (ppm)
	Volume concentration in gas	0.00 ... 99.99 vol%
	Trace sensor "01" (analog, Memosens)	
	Saturation[4]	0.000 ... 150.0 %
	Concentration[4] (dissolved oxygen)	0000 ... 9999 µg/l / 10.00 ... 20.00 mg/l 0000 ... 9999 ppb/10.00 ... 20.00 ppm
	Volume concentration in gas	000.0 ... 9999 ppm/1.000 ... 50.00 vol%
	Trace sensor "001" (analog)	
	Saturation[4]	0.000 ... 150.0 %
	Concentration[4] (dissolved oxygen)	0000 ... 9999 µg/l / 10.00 ... 20.00 mg/l 0000 ... 9999 ppb/10.00 ... 20.00 ppm
	Volume concentration in gas	000.0 ... 9999 ppm/1.000 ... 50.00 vol%
Input correction	Pressure correction	0.000 ... 9999 bar/999.9 kPa/145.0 psi (adjustable) manually or externally (via current input 0(4) ... 20 mA)
	Salinity correction	0.0 ... 45.0 g/kg

Specifications

Calibration and adjustment	Automatic calibration in air-saturated water
	Automatic calibration in air
	Saturation product calibration (with offset in SE 740)
	Zero correction
	Temperature probe adjustment

Calibration ranges	Standard sensor "10"	
	Zero point	± 2 nA
	Slope	25 ... 130 nA (at 25 °C/77 °F, 1013 mbar)
	Trace sensor "01"	
	Zero point	± 2 nA
	Slope	200 ... 550 nA (at 25 °C/77 °F, 1013 mbar)

Diagnostics/Service

Diagnostic functions	calibration data, device self-test, display test
Sensocheck	monitoring of membrane and electrolyte and the sensor wires for short circuits or open circuits
Sensoface	provides information on the sensor condition (zero/slope, calibration interval, Sensocheck and sensor wear)
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes – logbook entry and flag via HART in the case of configuration changes – message and logbook entry when enclosure is opened
Service functions	current source
Sensor monitor	display of direct sensor signals (sensor current, impedance, temperature, current input)

Approvals

Explosion protection	see Ex certificate and EU declaration of conformity or www.knick.de

Device data

Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
Transport/Storage temperature	–20 … +70 °C / – 4 ... 158 °F
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

continued - **Specifications**

Nominal operating conditions	
Ambient temperature	–20 … +65 °C / –4 ... 149 °F
Relative humidity	10 … 95 %
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	– wall mounting – pipe mounting: Ø 40 … 60 mm, ☐ 30 … 45 mm – panel mounting
Dimensions (mm)	H x W x D 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for ½" NPT or rigid metallic conduit
Control panel cutout	138 mm x 138 mm according to DIN 43700
Ingress protection	IP 66/67/NEMA 4X
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2.5 mm^2

[1] At rated operating conditions

[2] This equipment is not designed for domestic use, and is unable to guarantee adequate protection of the radio reception in such environments.

[3] ± 1 count, plus sensor error

[4] For temperature range -10 ... 80 °C/14 ... 176 °F

Simple Installation

– wall, post/pipe, or panel mounting

– all parts are easily accessible

– large terminal compartment

– pre-installation of rear unit possible

– also suitable for rigid metallic conduitsreplaceable screw terminals

– replacement of electronics without new cabling

Pipe-mount kit ZU 0274

For assembly on vertical
or horizontal pipes or posts.

Protective hood ZU 0737

Additional protection from
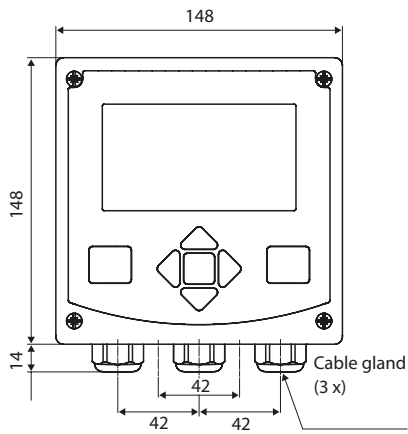direct weather exposure and
mechanical damage.

Panel-mount kit ZU 0738

For mounting in standardized panel
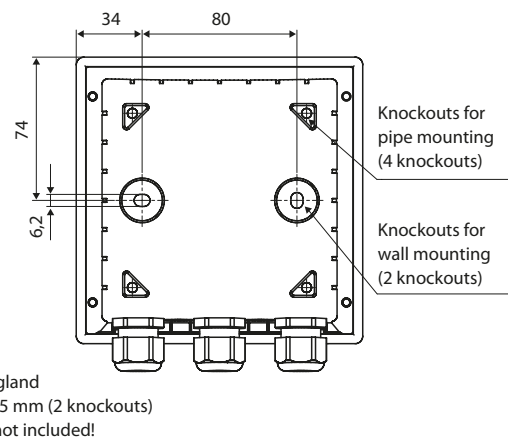cutout138 x 138 mm (DIN 43700), sealed
against panel.
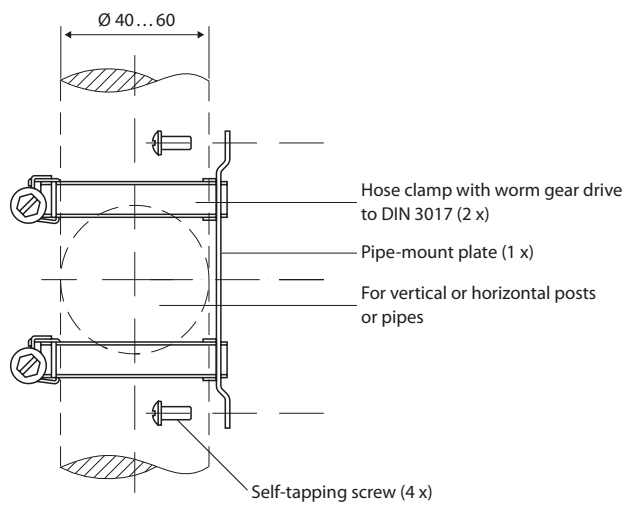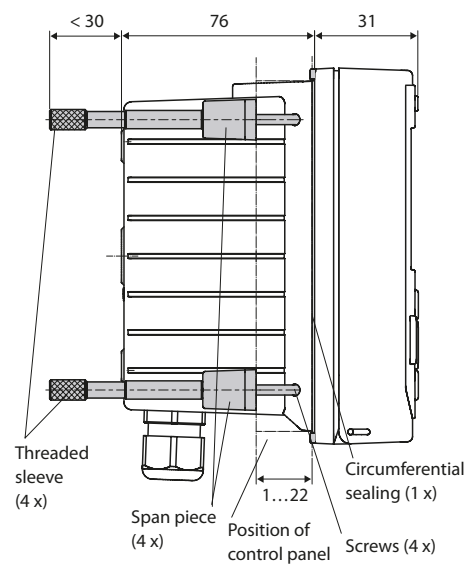
Knlck

Dimension Drawings

Front and side view

148

148

14

42

42 42

Cable gland (3 x)

117

43

21

43

Knockouts for cable gland
or conduit 1/2;, Ø 21.5 mm (2 knockouts)
Conduits couplings not included!

Rear side

34 80

74

6,2

Knockouts for
pipe mounting
(4 knockouts)

Knockouts for
wall mounting
(2 knockouts)

Pipe-mount kit ZU 0274

Ø 40…60

Hose clamp with worm gear drive
to DIN 3017 (2 x)

Pipe-mount plate (1 x)

For vertical or horizontal posts
or pipes

Self-tapping screw (4 x)

Panel-mount kitZU 0738
Control panel cutout 138 x 138 mm (DIN 43700)

< 30   76   31

Threaded
sleeve
(4 x)

Span piece
(4 x)

1…22

Position of
control panel

Circumferential
sealing (1 x)

Screws (4 x)

Protective hood ZU 0737

199

91

147

185

All dimensions in mm